



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Jeff Miller, et al.

Serial No.: **10/656,684**

Filed: **September 5, 2003**

Title: **"Drilling Fluid and
Method for Enhanced Suspension"**

§
§
§
§
§
§
§
§
§

Group Art Unit: **1796**

Confirmation No.: **8556**

Examiner: **KUGEL, TIMOTHY J.**

Atty. Docket No.: **HALB:045**

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING VIA EXPRESS MAIL

PURSUANT TO 37 C.F.R. § 1.10, I HEREBY CERTIFY
THAT I HAVE DEPOSITED THIS CORRESPONDENCE WITH
THE UNITED STATES POSTAL SERVICE AS EXPRESS
MAIL, POST OFFICE TO ADDRESSEE, ON THE DATE
INDICATED BELOW, ADDRESSED TO:

MAIL STOP AF
HONORABLE COMMISSIONER FOR PATENTS
P.O. Box 1450
ALEXANDRIA, VA 22313-1450

Karen Tripp *Sept 12, 2008*
KAREN TRIPP DATE

EXPRESS MAIL LABEL: **EH 310666321 US**

Affidavit of Ian Robb

After being duly sworn, the undersigned affiant stated as follows:

1. My name is Ian Robb and I reside in Lawton, Oklahoma.
2. I am Senior Scientific Advisor for Research at Halliburton Technology Center in Duncan, Oklahoma.
3. I am the same Ian Robb named as an inventor on United States patent application No. 11/634,008, which concerns technology related generally to the present patent application, U.S. Serial No. 10/656,684 (referred to hereinafter as "this patent application.")

3. Counsel asked me to prepare the following formulations in accordance with the Schlemmer U.S Patent No. 6,006,831, as provided in column no. 21, lines 20-35, and to measure their GPI (Gel Progression Index) as outlined by the American Petroleum Institute (API) Specification 13B-2, Section 4.3, Third Edition, February 1998 and as described in this patent application in paragraph [0023]. The maximum gel strength was measured after 10 sec and 10 min at 120°F. The GPI, defined as (10 minute gel strength/10 second gel strength)-1, for each formulation was measured three times and the average of these measurements is provided below as the GPI for the formulation.

Internal Olefin 80/20 invert emulsion drilling fluid mixed as follows:

Basic Formulation No. 1:

<i>Internal Olefin,</i>	<i>270 ml</i>	
<i>Tap Water,</i>	<i>67 ml</i>	
<i>Calcium Chloride,</i>	<i>24 g</i>	
<i>Total Emulsifier,</i>	<i>3 g</i>	<i>polyamide produced from polyamine reacted with fatty acids</i>
<i>Calcium Hydroxide,</i>	<i>0 g</i>	
<i>Filtration Control Materials,</i>	<i>3 g</i>	<i>lignite</i>
<i>Rheox "Bentone 38" gellant,</i>	<i>2 g</i>	<i>clay</i>
<i>Weighting agent*</i>	<i>544 g</i>	<i>barite</i>

**Basic Formulation without weighting agent could not be tested for GPI as the fluid had no measurable gel strength.*

Fluid Density: 14.6 ppg

Test: *Basic Formulation with weighting agent*

Basic Formulation No. 2

Internal Olefin,	270 ml	
Tap Water,	67 ml	
Calcium Chloride,	24 g	
Total Emulsifier,	4 g	polyamide produced from polyamine reacted with fatty acids
Calcium Hydroxide,	4 g	
Filtration Control Materials,	5 g	lignite
Rheox "BENTONE 38" gellant,	4 g	clay
Weighting agent*	544 g	barite

*Basic Formulation without weighting agent could not be tested for GPI as the fluid had no measurable gel strength.

Fluid Density: 14.6 ppg

Test: Basic Formulation with weighting agent

4. The results of these measurements are presented below:

Formulation 1

The Gel strength at 10 min was 17.3 (Fann 35 units @ 3 rpm)

The Gel strength at 10 sec was 16.0 (Fann 35 units @ 3 rpm)

$$\text{GPI} = 17/3/16.1 = \mathbf{0.08}$$

Formulation 2

The Gel strength at 10 min was 25.6 (Fann 35 units @ 3 rpm)

The Gel strength at 10 sec was 21.3 (Fann 35 units @ 3 rpm)

$$\text{GPI} = 25.6/21.3 = \mathbf{0.20}$$

5. The above measurements indicate that Formulation 1 had a Gel Progression Index of 0.08.
6. The above measurements indicate that Formulation 2 had a Gel Progression Index of 0.20.

Further affiant sayeth not.




Ian Robb

Sworn to and subscribed before me this 10th day of September 2008.

Seal





(Notary Public)